Department of Electrical and Electronic Engineering
Faculty of Engineering
Al-Fateh University

Course Title: Operating Systems **Course Code**: EE433

Term: Spring **Academic Year:** 2007-2008
Date: 26/7/2008 **Time allowed:** 2 Hours **Maximum Marks**: 50

Answer ALL questions.

1. (a) What is Deadlock and what are its conditions? [5 marks]
   (b) What are the steps of Deadlock prevention? [2.5 marks]
   (c) What are the steps of Deadlock recovery? [2.5 marks]

2. (a) What is a process scheduling? [1 mark]
   (b) Explain the Short-Tem Scheduling Criteria. [2 marks]
   (c) Assume that you have 5 processes and their requirements as shown in the following table. Explain using proper figures the following:
      i. Shortest Process Next. [4 marks]
      ii. Shortest Remaining Time. [3 marks]

Process	Arrival Time	Service Time
A	0	3
B	2	6
C	4	4
D	6	5
E	8	2

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3. (a) What are the Categories of I/O Devices? [3 marks]
   (b) What are the Differences in I/O Devices? [4 marks]
   (c) Explain the Cycle stealing technique. Sketch a proper figure to aid your answers. [3 marks]

4. (a) Explain using proper figures the following I/O Buffering techniques:
      i. Single Buffer. [2 marks]
      ii. Double Buffer. [2 marks]
      iii. Circular Buffer. [2 marks]
   (b) Explain the disk scheduling policies. [4 marks]

5. (a) What does RAID stands for? [1 mark]
   (b) Explain with aid of figures the six RAID level techniques. [9 marks]

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Department of Electrical and Electronic Engineering
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Course Title: Operating Systems **Course Code**: EE433

Term: Spring **Academic Year:** 2010-2011
Date: 11/7/2011 **Time allowed:** 2.5 Hours **Maximum Marks**: 80

Answer ALL questions.

1. (a) Sketch the state model *with two suspend state* for the *process* and write these states. **3 marks**

   (b) What are the reasons to suspend a process? **2 marks**

   (c) Explain the method of switching between processes. **5 marks**

2. (a) What is Deadlock and what are its conditions? **5 marks**

10 (b) What are the steps of Deadlock prevention? **2.5 marks**

   (c) What are the steps of Deadlock recovery? **2.5 marks**

3. (a) There are five requirements for Memory Management to satisfy, explain each of them. **5 marks**

   (b) Define the following terms: **2 marks**

10 i- *Fixed Partitioning.*

   ii- *Dynamic Partitioning.*

   (c) In Dynamic Partitioning, there are three methods of placement, explain each of them. **3 marks**

4 4. (a) Explain the following terms: **4 marks**

   i- *Thrashing.*

   ii- *Principle of Locality.*

   (b) One of the techniques the operating system uses to divide a process is paging. Explain this technique and sketch a diagram to support your answer. **4 marks**

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77 (c) Sketch a diagram to show the address translation in paging system. **2 marks**

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5. (a) Explain the technique of Translation Lookaside Buffer. **3 marks**

   (b) Sketch a diagram to show the address translation under Lookaside Buffer technique. **2 marks**

   (c) The operating system divides a process into segments, explain this technique and sketch a diagram to support your answer. **5 marks**

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6. Explain the following terms: **6 marks**
   - i- *Fetch Policy.*
   - ii- *Placement Policy.*
   - iii- *Frame Locking.*
   - iv- *Optimal policy.*

4 2 (b) Explain the Clock Policy. Sketch a proper diagram to support your answer. **4 marks**

7. (a) The operating systems handles a process in two ways, process creation and process termination, explain each of them. **4 marks**

(b) Explain the O.S. Kernel Structure. **2 marks**

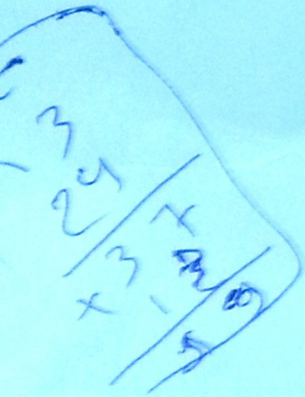
1 2 (c) What are the Microkernel Benefits? **4 marks**

1 2 8. (a) What is a process scheduling? **1 mark**

(b) Explain the Short-Tem Scheduling Criteria. **4 marks**

(c) Assume that you have 5 processes and their requirements as shown in the following table. Explain using proper figures the following:
   - i. *Round Robin.* **3 marks**
   - ii. *Feedback.* **2 marks**

Process	Arrival Time	Service Time
A	0	3
B	2	6
C	4	4
D	6	5
E	8	2



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